

THICKNESS DEPENDENCES  
OF PHOTOELECTRIC CHARACTERISTICS  
OF SILICON BACKSIDE CONTACT SOLAR CELLS

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S u m m a r y

The thickness dependences of the photocurrent quantum yield and photoenergy parameters of silicon backside contact solar cells (BC SC) are investigated theoretically and experimentally. The surface recombination rate on the irradiated surface was minimized by means of creating the layers of microporous silicon. A method of finding the surface recombination rate and the diffusion length of minority carriers from the thickness dependences of the photocurrent quantum yield under conditions of the strong absorption is proposed. The performed studies allowed us to establish that the thinning of the BC SC samples in the case of minimizing the surface recombination rate gives a possibility to achieve rather high efficiencies of photoconversion. It is also shown that the agreement between the experimental and theoretical spectral dependences of the photocurrent quantum yield can be reached only with regard for the coefficient of light reflection from the backside surface.